

# Example Project: Shrub Encroachment in the S.W. U.S.

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- Brush management is critical to sustainable livestock management in many semi-arid rangelands. The balance between grass and shrubs is regulated by complex interactions between climate, soils, herbivory and land use.
- Changing fire and grazing practices can dramatically alter ecosystem structure (woody plant encroachment) and function (sequestration or liberation of C and N).
- Replacement of C4 grasses by C3 shrubs modifies soils and microclimate:
  - C and N flux from soils increases
  - C and N pool sizes in plants and soils increases
- Remote sensing of vegetation structure coupled with ecosystem simulation models can track biogeochemical dynamics under changing land use and climate.
- Regional accounting of these changes will aid planning/ assessment efforts of landowners and local, state and federal management agencies.

